

先天性鏡像動作患者之動作關聯腦皮質電位

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Movement-Related Cortical Potentials in Congenital Mirror Movement

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Background Congenital mirror movement (CMM) is a movement disorder that manifested involuntary movement of one side of the body by intentionally moving the other side. The underlying mechanism remains unclear.

Methods Since this disorder is closely link to the motor system, it is feasible to apply movement related cortical potential (MRCP) to assess whether the function of the motor programming, preparation or execution is perturbed in such patients. Three CMM patients and three healthy subjects were included in this study to compare their MRCP waveforms.

Results The difference of total negativity between two central hemispheres (C3 and C4) was significantly larger in the controls ($-324.74 \mu\text{V} \pm 85.04$) than the patients ($-13.52 \mu\text{V} \pm 81.02$) ($p < 0.05$ by Mann-Whitney). The waveform amplitudes in frontal midline area (FCz) at 200 msec before movement onset were larger in patients ($-6.90 \mu\text{V} \pm 0.50$) than the controls ($-4.24 \mu\text{V} \pm 0.86$) ($p < 0.05$ by Mann-Whitney), which may suggest diminution of activity of supplementary motor area (SMA) in patients. The scalp voltage maps failed to demonstrate lateralization in the patients.

Conclusion The current findings suggest that underactivity of SMA and unintended participation of the opposite motor cortex may be crucial for the generation of CMM.